

#### HOMES WITH

# Insulated Walls

## ARE MORE COMFORTABLE... MORE SALABLE

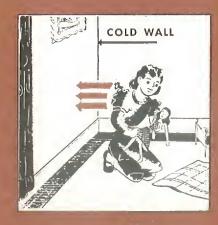
The home-buying public is well informed on the benefits and the necessity of insulation. Government statements, magazines and newspaper articles, as well as more than a quarter-century of Celotex national advertising have made insulation a "must" in quality homes.

Home buyers know that overhead insulation alone is not enough! They know that wall insulation is essential for summer comfort, for winter comfort, for family health protection, for assured fuel economy. They know that interior surfaces of insulated walls are warmer than uninsulated walls in winter... that cold walls reduce the comfort area of the room and cause chilling drafts... that warmer walls mean more even, more healthful temperatures throughout the house.

The importance of sidewall insulation in all climates is pointed out in the following two statements from U.S. Bureau of Mines Information Circular 7166:

- 1. "For typical suburban homes it has been estimated that 60% of the heat lost in winter filters through sidewalls and 40% through the roof."
- 2. "About one-third the heat gained in summer enters through sidewalls and two-thirds through the roof. Obviously both should be insulated for maximum year-'round comfort and economy."

The most economical way to provide effective sidewall insulation is to insulate as you build with Celotex Insulating Sheathing.



Cold walls rob the body of heat... endanger health...reduce the comfort area of the room. Technical Bulletin No. 3, Federal Housing and Home Finance Agency states:

"59" wall surface temperature will produce a minimum condition below which discomfort will be experienced."

Celotex Insulating Sheathing insures warmer walls than other types of sheathing — providing temperatures above this comfort level even in extremely cold weather.

...it costs no more

THAN UNINSULATED CONSTRUCTION

# Prove to Yourself-

INSULATING

LABOR AND MATERIAL COST COMPARISON FOR 1,000 SQ. FT. WALL AREA	WALL 1  Wood Sheathin  Horizontal  "U" Factor 0.2	
MATERIAL AND LABOR	QUANTITY AND TIME	COST
Sheathing	*1150 sq. ft.	
Carpenter Labor	**15 hrs.	
Let-in Bracing		***\$20.00
Building Paper	2.3 rolls	
Sheathing  Carpenter Labor  Let-in Bracing	*1150 sq. ft.  **15 hrs.	

Celotex 25/32" Insulating Sheathing "U" Factor 0.19			
QUANTITY AND TIME	COST		
*1050 şq. ft.			
**10 hrs.			
***0	0		
****0	0		
0	0		
	1		

\*The nominal vs. actual width of wood sheothing, plus a small amount of waste accounts for 15% overage on wood. There is no dimensional loss in Celotex Insulating Sheathing and 5% woste is much more than most carpenters figure, since cut pieces are usable in gables, over doors, around windows etc.

Labor to apply Building Paper

Total cost per 1,000 sq. ft.

\*\*Average time. Substantiated by many builders. \*\*\*Builders estimate average cost of bracing in small house at 2c per square foot of wall area. All types of horizontal sheathing require bracing for proper strength. (See test data on page 6.) Celotex  $\frac{25}{32}$ , 4' wide Insulating Sheathing, applied vertically, without corner bracing, for surpasses FHA strength requirements as set up in Circular No. 12. \*\*\*\*No building paper necessary.

#### WALL 1

13/3 hrs.

This was "standard" construction years ago before the advantages of insulation were recognized. This wall is not acceptable in many areas today. It fails to meet government minimum insulation requirements unless supplementary insulation is added, It wastes the owner's fuel money ... and denies him the year round comfort that he gets with Celotex insulated construction.

#### WALL 2

Has 24% more insulation value than the wood sheathed wall. Meets government insulation requirements in practically the entire country. With this construction, you can assure the buyer of lower fuel bills and a more comfortable, more healthful home, winter and summer. This wall has far greater structural strength, goes up in less time, is more wind-tight than wall No. 1. Yet in most areas its applied cost is no greater!

Shown here are four popular types of wall construction. It will pay you to take a few minutes' time and figure the applied costs of these walls in your locality by filling in the blanks below.

All four walls show exterior of wood siding on stude 16" o.c., and an interior of Celo-Rok\* gypsum lath and plaster. Nail costs are not included, since any differences are slight.

Whether the exterior is wood siding, masonry veneer, stucco, or shingles . . . and whether the

interior is lath-and-plaster or dry wall...the relative differences in insulation values of these walls remain the same.

The "U" factor of a wall is the measure of its resistance to the passage of heat. The lower the "U" factor, the greater the insulation value of the wall.

NOTE: The heat loss coefficient ("U" factor) of a wall is the amount of Btu it transmits per sq. ft., per hour, per degree difference in temperature between air on the inside and outside of the house.

\*REG. U.S. PAT. OFF.

WALL 4 WALL 3 WALLS FOR LOW-COST ECONOMY HOMES 1/2" Gypsum Celotex 1/2" Sheathing Insulating  $2' \times 8'$ Sheathing "U" Factor 0.31 "U" Factor 0.22 QUANTITY QUANTITY MATERIAL AND LABOR COST COST AND TIME AND TIME 1050 sq. ft. Sheathing 1050 sq. ft. Carpenter Labor 10 hrs. 10 hrs. \*0 Let-in Bracing \*\$20.00 0 Total cost per 1,000 sq. ft.

\*Time and material for bracing estimated at 2c per square foot of wall area. 2' x 8' gypsum sheathing requires bracing for proper strength. Celotex 4' wide ½" Insulating Sheathing, used vertically, requires no bracing unless specified by local regulation.

#### WALL 3

This wall should have supplementary insulation, thus further increasing its cost. Compare the cost of this wall to that of wall No. 4—where both sheathing and insulation go up in *one* material at *one* cost!

#### WALL 4

The minimum cost insulated wall. Has 29% more insulation value than wall No. 3! Provides more comfort, saves more fuel, and is structurally stronger than either wall No. 3 or the wood sheathed wall No. 1.

# Greater Bracing Strength

#### TEST STIPULATIONS

Six individual tests must be run—3 on dry panels and 3 on wet. The average value of each series must be at least equal to the standard set up in FHA Technical Circular No. 12. (This standard is the racking strength of horizontally applied wood sheathing with let-in bracing.)

For the wet series, the test panels were sprayed with water on both sides for 3 periods of 6 hours each, with 18 hours drying time between sprayings.

Note that Celotex Double Waterproofed Sheathing greatly exceeds wet test standards –82% above requirements at maximum load! This is convincing proof of the effectiveness of the Celotex double-waterproofed process—assuring exceptional moisture resistance under severe job conditions.

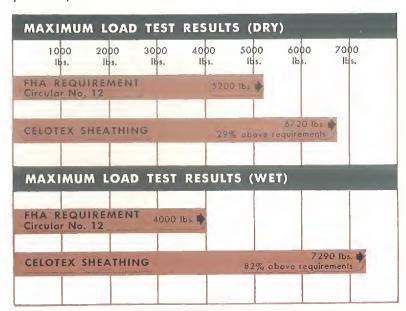
#### 24" STUD SPACING

Celotex <sup>25</sup>/<sub>32</sub>" 4" wide Insulating Sheathing may be used on studs spaced 24" o.c., with corner bracing, where this construction complies with Regional FHA Minimum Property Requirements for one story houses, as well as local building regulations.

### CELOTEX 25/32" 4-FT. WIDE INSULATING SHEATHING WITHOUT CORNER BRACING EXCEEDS FHA STANDARDS

Performance standards for racking strength, as set up in FHA Technical Circular No. 12, are greatly exceeded by Celotex 25/32" Big Board Insulating Sheathing applied vertically, without corner bracing. FHA acceptability of this construction permits important extra savings in labor and materials. Results of tests conducted by a recognized independent laboratory, and comparison with FHA standards, are shown below:

Tests were made on  $8' \times 8'$  panels framed according to FHA test requirements, with studs 16'' o.c. The 4-ft. wide Celotex  $^{25}\!\!\!/_2''$  Double Waterproofed Insulating Sheathing was applied vertically with standard recommended nailing. Load is pressure applied. Deflection readings are taken at specified loads. Maximum load is the load applied at failure point of the panel.



DEFLECTION TEST RESULTS	FHA STANDARD Circular No. 12		CELOTEX SHEATHING	
At Load of 1200 lbs.	DRY	WET	DRY	WET
Average Total Deflection (Inches)	0.2	0.2B	0.217	0.147
Residual Deflection* (Inches)	0.1	0.14	0.067	0.040
At Load of 2400 lbs.				
Average Total Deflection (Inches)	0.6	0.8	0.533	0.483
Residual Deflection* (Inches)	0.3	0.4	0.230	0.187

<sup>\*</sup>Deflection remaining after removal of load.

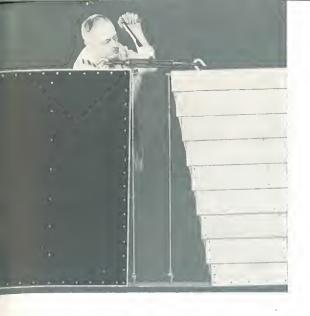
#### Tests also prove superior strength of other types of Celotex Double-Waterproofed Sheathing

PANEL CONSTRUCTION—STUDS 16" o.c.	LOAD AT 1/2" DEFLECTION	MAXIMUM LOAD
Horizontal Wood Sheathing (Na Bracing)	460 lbs.	1800 lbs.
Horizontal Wood Sheathing With Bracing in Tension	1600 lbs.	2450 lbs.
1/2" Celatex Sheathing* (No Bracing)	2000 lbs.	3200 lbs.
<sup>25</sup> / <sub>32</sub> " Celotex Center Matched Sheathing With Bracing in Tension	1260 lbs.	3990 lbs.
Horizontal Wood Sheathing With Bracing in Compression	1000 lbs.	6800 lbs.
½" Celotex Sheathing* With Bracing in Compression	3250 lbs.	8100 lbs.

The table at left shows results of other racking strength tests made by independent laboratories. The procedure followed in testing is similar to that set up by FHA in Technical Circular No. 12. Interpreted according to Forest Products Laboratory, U. S. Dept. of Agriculture, the load at ½" deflection is a measure of the *rigidity* or *stiffness* of the panel and the load at failure (maximum load) is a measure of ultimate *strength*.

Structural bracing strength of Celotex Sheathing exceeds that of conventional sheathing. Corner bracing may be omitted with ½", 4-ft. wide or 25/32" Center Matched Celotex Sheathing unless specified by local regulations.

<sup>\*</sup>Applied vertically.

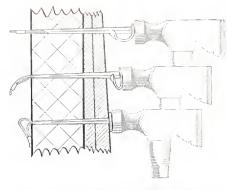


#### STRUCTURAL STRENGTH TEST DEMONSTRATION

Many builders use the "tug-of-war" test as a practical demonstration of the superior bracing strength of Celotex Insulating Sheathing over horizontal wood sheathing. The test panels, nailed to 2" x 4" framing, are bolted upright to a common sill and connected by a turnbuckle. As the turnbuckle is tightened, the Celotex Insulating Sheathing panel remains plumb, while the wood panel is distorted. For detailed instructions on building the "tug-of-war" test panel, write The Celotex Corporation for File No. 4884.

### Shingles MAY BE APPLIED DIRECT

#### WITHOUT USE OF FURRING STRIPS



Loc-Nail drives with a hammer like ordinary nail. Lost blow of hammer causes locking foot to be drawn up behind sheathing in a clinching action. Important contributions to "Economy Home" construction are the new types of patented fasteners specially developed for applying wood or asbestos shingles directly to Celotex Insulating Sheathing.

Two of the most widely used fasteners are Loc-Nails, made by E. G. Building Fasteners Corporation, 101 Park Ave., New York 17, New York, and the ES-Nail, made by Elastic Stop Nut Corporation of America, Union, New Jersey.

Write THE CELOTEX CORPORATION, Chicago 3, Illinois, for Technical Bulletin 103b for application instructions.

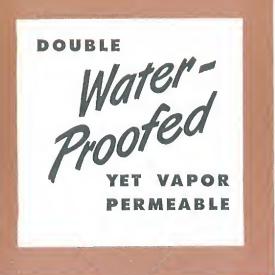
Application of asbestos shingles direct to Celotex Insulating Sheathing with ES-nails.

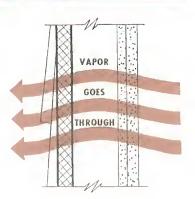
Berkeley Orchards subdivision, St. Louis County, Missouri. 136 homes in this subdivision sided with asbestos shingles applied directly to Celotex Insulating Sheathing with patented fasteners. Builder, Ed Juncker.





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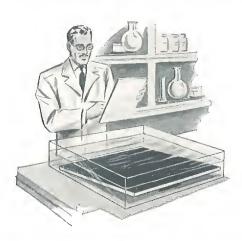


No matter how wet the weather, you don't need to worry about "sealing up" moisture in walls when you use Celotex Insulating Sheathing. It's double-waterproofed! Waterproofed inside by integral treatment that coats every one of the millions of cane fibres in every board during manufacture. Waterproofed outside by a "raincoat" of special moisture-proofing asphalt on all sides and edges. No building paper needed when you use Celotex Insulating Sheathing.

#### PROTECTION AGAINST CONDENSATION

Though double-waterproofed, Celotex Insulating Sheathing is vapor permeable, having more than twice the vapor permeability advocated by government agencies. Where a vapor barrier is not used on the room side of the wall, under normal humidity conditions, vapor escapes through the sheathing, thus preventing harmful condensation within the wall. (In cold climates, or where high humidity is present, a vapor barrier on the room side is recommended, regardless of type of sheathing used.)

#### SUBMERSION TESTS PROVE MOISTURE RESISTANCE



Tests by independent laboratories prove the effectiveness of the Celotex double-waterproofed process. In these tests, a piece of Celotex Insulating Sheathing, with two cut edges, was submerged in a tank of water. At the end of two hours, moisture absorption by volume was only 1.1%. Commercial Standards CS 42-49 Class E Sheathing permits 10% maximum absorption at the end of two hours. Thus, the board exceeds by nearly 9 times Federal requirements for moisture resistance. It is important to note that these tests were made with cut edges, although 90% of the average wall is covered with uncut boards with asphalt-coated edges.

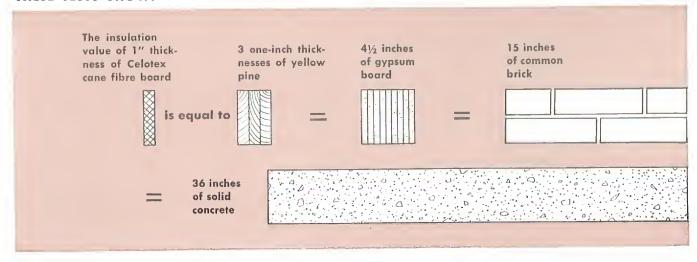




Cut through a piece of Celotex Insulating Sheathing and you will see that its fibres are long and strong, and firmly felted and interwoven to act as reinforcement throughout the board. These are Louisiana cane fibres, the basic material for manufacturing all Celotex insulating board products. This fibre is unusually tough, strong, resilient, has high insulating qualities, and is exceptionally resistant to deterioration.

The high insulation value of Celotex cane fibre board has been established by many laboratories—National Bureau of Standards, Illinois Institute of Technology, and others.

#### THESE TESTS SHOW:



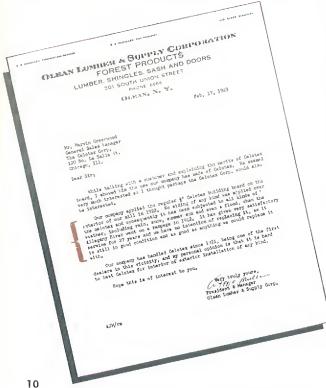
Celotex Insulating Sheathing on Woodlane Apartments, Dallas, Texas, large project built and owned by L. F. Corrigan. Architects, White and Prinz, Dallas.

**TERMITE AND DRY ROT RESISTANCE** — The individual cane fibres are chemically treated by the patented Ferox\* Process. Ferox-treated Celotex board has been demonstrated by laboratory tests and years of use to be protected effectively against termite and dry rot attack.

**SUPERIOR TOUGHNESS** — Celotex Insulating Sheathing is a rugged board, especially resistant to damage in hauling and handling on the job. The long, strong, wiry cane fibres permit it to stand heavy strain and bend without breaking. Edges take rough treatment without "brooming." If a board does become damaged or broken on one surface, the long interwoven cane fibres act as reinforcement and prevent a clear-through break, making the board completely usable.



# MORE THAN A QUARTER CENTURY OF Proventialy Durability



Approximately one million homes have been built with Celotex Insulating Sheathing. The exceptional durability of Celotex cane fibre products has been proven by more than a quarter century of *performance in use*. A typical example of its resistance to wear and weather, even under the most severe conditions, is related in this letter from Mr. A. J. McMullen of the Olean Lumber Co., Olean, New York.

"Our company applied the regular 1/2" Celotex building board on the exterior of our mill in 1922. No siding of any kind was applied over the Celotex and consequently it has been subjected to all kinds of weather, including rain, snow, summer sun and even a flood, when the Allegheny River went on a rampage in 1942. It has given very satisfactory service for 27 years and we have no intention of replacing it, as it is still in good condition and as good as anything we could replace it with."

NOTE: The  $\frac{1}{2}$ " board used on this building was one of the earliest types produced by Celotex. It did not have the improved integral waterproofing or the protective asphalt "raincoat" you get today in Celotex Insulating Sheathing. Constant research and advanced manufacturing methods have greatly added to its durability and weather-resistance.

Lewis Gardens, near Richmond, Va. A 500 unit apartment project using Celotex Insulating Sheathing. Builder, Franklin A. Trice.





V-type center matched Celotex Sheathing is applied horizontally



Big Board Celotex Sheathing is applied vertically

# Three types Two thicknesses

### IMPROVED V-TYPE JOINT ON CENTER MATCHED

Note the wide, strong shoulders pratecting the groove. Also the topered, square-end tongue. The joint is snug and wind-tight. The tapered design permits quick, easy fitting, even if edges have been damaged.



MATERIAL	WT. PER 1,000 SQ. FT.	
Celotex <sup>25</sup> / <sub>32</sub> " Sheathing	1320 lbs.	
Celotex ½" Sheathing	850 lbs.	
½" Gypsum Sheathing	2150 lbs.	
Yellow Pine 1" x 8" Shiplap	3000 lbs.	

- Meets with building code regulations
- Complies with FHA minimum property requirements
- Acceptable for insured mortgage loans

Celotex Sheathing is designed for use under wood siding, wood or asbestos shingles, masonry veneer or stucco.

**25/32"** Big Board -4' wide x 8', 9', 10' and 12' long. Square edges. Choose the length to extend from sill to plate (or header).

1/2" Big Board—For Economy Home Construction—4' wide x 8', 9', 10' and 12' long. Square edges.

**25/32" V-Type Center Matched**-2' x 8' with new improved V-type tongue and groove on long edges.

#### A BOARD THAT CARPENTERS LIKE TO HANDLE

Celotex Insulating Sheathing is easy to saw, and easy to apply. Convenient nail indentations at stud lines on Big Board help the carpenter. There are no splinters, no warped boards to contend with as in wood sheathing. *Donble-traterproofed*, the boards require no special protection on the site. Right after the heaviest rain they're dry inside, dry outside.

Catpenters especially like its lightweight feature. Two men can put up a  $4' \times 9'$  Celotex  $^{25}32''$  board, weighing only 48 lbs., with ease. The  $2' \times 8'$  Celotex  $^{25}32''$  board, weighing only 21 lbs., is easily applied by one man. The figures in the table at left show how much *less weight* is handled when carpenters use Celotex Insulating Sheathing.

#### WIND-TIGHT WALLS

Celotex Insulating Sheathing provides permanent, non-warping, wind-tight surface from sill to plate. There are no cracks, no knot-holes, no open joints for wind penetration.

#### 100% WALL AREA INSULATED

Celotex Insulating Sheathing insulates over studs as well as spaces between studs, completely covering the wall with an even layer of insulation that stays permanently in place. Provides 12% more insulated area than a wall with between-stud insulation.





#### **BUILDING PRODUCTS**

#### SOLD BY Your Lumber Dealer

#### CELOTEX INSULATING LATH

A genuine cane fibre board product providing a strong, continuous plaster base plus thermal and sound insulation for frame and masonry construction. Used in place of 3%" gypsum lath, it increases the insulating value of an 8-inch brick wall 27%.

Types - Regular and Vapor Seal.

(Celotex Vapor Seal Insulating Lath hos a vapor barrier in the form of a special asphalt coating on the back.)

Edges - All edges beveled, long edges shiplapped.

Size - 18" x 48".

Thickness-1/2".

#### CELOTEX INSULATING INTERIOR FINISHES

BUILDING BOARD-White finish.

**Sizes**— $V_2$ '' thick × 4' × 6', 7', 8', 9', 10', 12'. 1" thick × 4' × 8', 10', 12'.

BEVELED INTERIOR BOARD—Beveled on long edges. White finish.

Sizes-4' x 6', 7', 8', 9', 10', 12'. Thickness-1/2".

TILE BOARD with Type "E" Joint for concealed stapling or nailing. Ripple Blend, Textured White, Smooth White, Sierra Rose and Blue-Green. Sizes—12" x 12", 12" x 24", 16" x 16", 16" x 32".

Thickness-1/2"

FINISH PLANK with Type "E" Joint for concealed stapling or nailing. Ripple Blend, Smooth White, Sierra Rose and Blue-Green.

Widths-8", 12", 16". Lengths-8', 10', 12'. Thickness-1/2".

#### CELOTEX ASPHALT ROOFING PRODUCTS

A complete line of Thick Butt, Hexagonal and Sta-Lock shingles for new construction and re-roofing. Exclusive "Color Harmonized" blends. Also roll roofing and roll siding.

Manufactured under the Celotex Triple Sealed process:

- Inner Seal—the bose felt is saturated with special asphalts applied from one side only to force out moisture and prevent formation of blisters.
- Outer Seal—by immersion in asphalt to seal all surfaces against moisture.
- Face Seal—an extra protective coating of heavy mastic asphalt "armor plates" the roofing and provides a base for granules.

#### CELO-ROK\* GYPSUM PRODUCTS

WALL BOARDS—for strong, low-cost walls, partitions and ceilings. Square Edge—Sizes—4'  $\times$  6' to 12'. Thicknesses— $\frac{1}{4}$ ",  $\frac{3}{6}$ ",  $\frac{1}{2}$ ". Recessed Edge—Provides smooth continuous surface when joints are concealed with Celo-Rok Joint Reinforcing System. Sizes—4'  $\times$  6' to 12'. Thicknesses— $\frac{3}{6}$ ",  $\frac{1}{2}$ ".

PLASTERS—A complete line of gypsum plasters of uniformly high quality.

LATH—Plain or Perforated.

Sizes-16" x 32" and 16" x 48". Thickness-38".

1/2" WEATHERPROOF SHEATHING—Made water-repellent by special weather-proofing compound on both surfaces and edges. Each panel is stamped "Water-Repellent." Long edges are V-tongue and groove. Size—2' x 8'.

#### CELOTEX FLEXCELL\*

Bituminous Impregnated Cane Fibre Board

Flexcell board, a premoulded material, is designed for use as concrete expansion joint, as sill sealer in frame construction, plate sealer on masonry walls, as edge or perimeter insulation for concrete floors at grade.

Flexcell board is non-extruding under compression—absorbs pressure from expanding concrete. It re-expands on release of pressure, keeping the joint snugly filled.

**Standard Sizes** include 10' lengths by 4'', 5'', and 6'' widths in thicknesses of  $\frac{1}{4}''$ ,  $\frac{3}{6}''$ ,  $\frac{1}{2}''$ ,  $\frac{3}{4}''$ , ond 1". Also 36'' and 48'' widths, 10' long, which are easily cut to any required size.

#### CELOTEX ROCK WOOL PRODUCTS

**CELOTEX ROCK WOOL** is one of the most effective insulating materials known to science. It has a low thermal conductivity of 0.27 Btu per inch thickness.

CELOTEX ROCK WOOL BLANKETS—Paper-encased for clean, easy handling and secure installation. Pre-cut in lengths to permit easier, faster installation between studs, joists or rafters. 8' length provides floor-to-ceiling coverage. Celotex Rock Wool Blankets are faced with a vapor-barrier paper, flanged on long edges for stapling or nailing to framing.

Full Thick or Semi-Thick—15" x 95", 15" x 48" and 15" x 24". Utility Blanket—15" x 96".

HAND POURING HOME INSULATION—Rock Wool specially processed into properly sized pellets for easy pouring directly from bag into open attic joist spaces and other areas. In 40 lb. bags.

#### CELOTEX HARD BOARDS

CELOTEX HARD BOARDS are hard, dense, grainless, moisture-resistant boards made from clean, refined wood fibres. They are easy to cut, saw, punch, drill, nail, bend, glue—with ordinary tools. May be painted, enameled or lacquered. Not an insulation board, but a strong, scuff-resistant, moisture-resistant structural material. Ideal for wall paneling, wainscoting and partitioning in residential, commercial and public buildings. Hord Board Tile is specially suited to kitchen and bathroom walls, to walls of restaurants, supermarkets, auto service stations.

Types—Regular Hard Board, Panel Board, Tempered, Black Tempered, Tile (scored 4" squares) and Leather-Grain.

Sizes-4' x 6' to 12'. Thicknesses-1/10", 1/8", 3/6", 1/4", 5/6".

THE CELOTEX CORPORATION • CHICAGO 3, ILLINOIS